

CLAIMS

WHAT IS CLAIMED IS:

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1. A heat-treated elongate member formed at least in part of a composite elongate core formed at least in part of a precipitation hardened material.
 2. The elongate member of Claim 1 wherein the composite elongate core has a modulus of elasticity of at least 9×10^6 psi.
 3. The elongate member of Claim 2 wherein the modulus of elasticity is at least 12×10^6 psi.
 4. The elongate member of Claim 3 wherein the modulus of elasticity is at least 15×10^6 psi.
 5. The elongate member of Claim 1 wherein the composite elongate core has an ultimate tensile strength of at least 150 ksi.
 6. The elongate member of Claim 5 wherein the ultimate tensile strength is at least 180 ksi.
 7. The elongate member of Claim 6 wherein the ultimate tensile strength is at least 200 ksi.

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8. A heat-treated elongate member formed at least in part of a composite elongate core formed of at least in part of precipitation hardened material formed from a precipitation hardenable material comprising of at least two material selected from the group consisting of nickel, cobalt, molybdenum, chromium, tungsten, and iron.
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9. The elongate member of Claim 8 wherein the precipitation hardenable material is precipitation hardenable stainless steel.
10. The elongate member of Claim 9 wherein the precipitation hardenable material is chromium-nickel based single stage martensitic precipitation hardenable stainless steel.
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11. The elongate member of Claim 9 wherein the precipitation hardenable stainless steel is essentially nickel free.
12. The elongate member of Claim 9 wherein the precipitation hardenable stainless steel includes less than about 1% nickel.
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13. The elongate member of Claim 8 wherein the precipitation hardenable material is a cobalt based precipitation hardenable alloy.
14. The elongate member of Claim 13 wherein the cobalt based alloy further includes nickel, molybdenum and chromium.

15. The elongate member of Claim 14 wherein the alloy further includes less than about 10 % by wt. iron.
16. The elongate member of Claim 8 wherein the composite elongate core has an inner core element and a first layer portion disposed at least in part about the inner core element, the inner core element and the first layer portion being formed from different material.
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17. The elongate member of Claim 16 wherein the inner core element and the first layer portion are independently formed from superelastic NITINOL and precipitation hardenable material.
18. The elongate member of Claim 17 wherein the inner core element is formed from superelastic NITINOL.
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19. The elongate member of Claim 17 the first layer portion is formed from superelastic NITINOL.
20. The elongate member of Claim 19 wherein the composite elongate core further includes a second layer portion disposed at least in part about the first layer portion and formed from a material similar to the inner core element material.
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21. The elongate member of Claim 18 wherein the composite elongate core further includes a second layer portion disposed at least in part about the first layer portion and formed from a material similar to core element material.
- 5 22. The elongate member of Claim 18 wherein the elongate member is a guidewire.
- 10 23. The elongate member of Claim 22 wherein the composite elongate core includes a distal segment having a distally tapered section with proximal and distal portions, and a distal flexible section, the inner core element being at least partially exposed at the distal flexible section of the distal segment of the composite elongate member.
24. The elongate member of Claim 19 wherein the elongate member is a guidewire.
- 15 25. The elongate member of 24 wherein the composite elongate core includes a distal segment having a distally tapered section with proximal and distal portions, and a distal flexible section, the inner core element being at least partially exposed at the distal flexible section of the distal segment of the composite elongate member, and the first

layer portion being at least substantially exposed at the proximal portion of the distally tapered section of the distal segment of the composite elongate core.

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